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SYRIA AND LEBANON: OIL INDUSTRY AND INSTALLATIONS

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JOINT INTELLIGENCE BUREAU
MINISTRY OF DEFENCE
LONDON

DECEMBER 1956

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CONTENTS

INTRODUCTION

This report contains a general survey of the oil industry in Syria and Lebanon, giving details of imports, production, distribution, storage capacity and consumption, with a short appreciation of recent developments in these two countries. This is followed by a series of Appendices, giving details of individual oil installations.

GENERAL SURVEY

Position of oil in the economy

1. Oil is the principal source of power in Syria and Lebanon, supplying the basic fuel for communications and industries. Fuelwood and hydro-electric power meet a small proportion of the total power requirement, but liquid fuels account for at least 90 per cent. of the total.

Importance of Syria and Lebanon as transit areas

2. Both countries are important in the international oil economy by serving as transit areas and terminal points for four major pipelines which carry oil from Iraq and Saudi Arabia to terminal points located at three Mediterranean ports: Banias, Tripoli and Sidon. The three pipelines terminating in Lebanon, and the fourth in Syria, have a total annual crude oil capacity of some 41 million tons.

Sources of oil

3. Syria and Lebanon are dependent on imported oil, either in finished or crude form, as no commercial deposits of petroleum have been discovered in either country. Syria is purely a transit country for crude oil, and has no refinery. Crude oil reaches the Lebanon through two pipelines from Iraq and one pipeline from Saudi Arabia. Those from Iraq terminate at Tripoli and that from Saudi Arabia at Sidon, and there are small refineries at both terminals, supplying products to Syria, Lebanon and Jordan.

4. In the first half of 1956, requirements of aviation products and lubricants in both countries were met entirely by imports from the Americas and Western Europe. The consumption of motor gasoline and kerosine was met mainly by production from the Tripoli and Sidon refineries, supplemented in the case of Syria by imports from France, Italy and Aden. Lebanon's requirements of gas oil were met by her share of local refinery production, but Syria normally imports over 70 per cent. of her gas oil needs from France, Italy, Aden, Peru and the Persian Gulf (Syria takes little gas oil from the Sidon refinery). The consumption of fuel oil in both countries was met from Tripoli and Sidon.

Refining

5. The Tripoli refinery is owned and operated by the Iraq Petroleum Company, and the Sidon refinery by the Mediterranean Refining Company (a subsidiary of Caltex and Socony Mobil). The estimated monthly production at both refineries in 1956 is as follows:—

(Long tons)

	Tripoli Refinery	*Sidon Refinery*	*Totals*
Motor gasoline	8,240	6,330	14,570
Kerosine	4,540	3,670	8,210
Gas oil	7,960	8,170	16,130
Fuel oil	21,090	16,670	37,760
Total (Refined products) ...	41,830	34,840	76,670
Crude oil processed ...	44,980 approx.	37,460 approx.	82,440

6. Neither refinery has been working to capacity. The crude monthly throughput of the Tripoli refinery could be increased to about 58,000 tons, and of the Sidon refinery to about 50,000 tons. The yields of each product would increase approximately in proportion to the above production figures.

7. Neither refinery can produce aviation gasoline or lubricants, nor has aviation turbine fuel been produced, though both units could refine the last product if necessary.

Distribution of oil products

8. Refined products are distributed from the two refineries by road and standard-gauge railway to both Syria and Lebanon. Imported refined products are distributed from Beirut by road and narrow-gauge railway to Damascus and Jordan. Beirut is also a transhipment point for the distribution of products from the two refineries to Damascus.

9. Road tankers distribute a greater proportion of the oil products than rail. The number of road tankers operating in Lebanon is not known, but in December 1953 the number of road tankers operating in Syria was as follows:—

Company	*Number*	*Capacity*
Socony Mobil	37	Total 101,200 gallons.
National Petroleum Co. ...	3	2 × 1,760 gallons. 1 × 1,320 gallons.
Syria and Lebanon Oil Co.	2	2 × 2,200 gallons.
Chammas	16	16 × 2,200 gallons.
Mourgue d'Algue ...	—	Hire as required from contractors.
Esso	40	Average capacity 9½ tons. Also hire from contractors.
Iraq Petroleum Co. ...	8	Up to 5½ tons—3. Over 7 tons—5.
Shell	150	Average capacity 1,980 gallons. This fleet covers Syria and Lebanon, and includes tankers registered in Lebanon.
Total	256	Total capacity about 2,000 tons.

The total figure is probably a minimum, and there are in addition considerable numbers operating in the Lebanon.

10. Both the standard and narrow gauge railway systems in both countries are used for the transportation of oil products. The D.H.P. Company operates both systems in Lebanon. The Syrian Government under the title "Northern Railways" (N.R.) operates the Aleppo–Meidane Ekbes, Aleppo–Tchobane Bey and Nusaybin–Tel Kotchek standard-gauge lines in Syria and also the narrow-gauge Damascus–Dera'a–Nassib line under the title "Chemins de Fer de Hedjaz" (C.F.H.). The number of rail tankers owned by these systems covering both countries, in December 1955, was as follows:—

Narrow Gauge			*Standard Gauge*		
Total	*D.H.P.*	*C.F.H.*	*Total*	*D.H.P.*	*N.R.*
27	4	23	74	15	59

11. There are no refined products' pipelines in either country. The Iraq Petroleum Company periodically pumps gas oil through the 12-in. pipeline from the K3 Topping Plant in Iraq to the T pumping stations. If necessary, the 12-in. and 16-in. lines could be used for the throughput of black oils from Iraq, but they could not be used for white oils.

Storage facilities

12. In Lebanon there is a known total storage capacity for refined oils of about 167,000 tons, and for crude oil of about 789,000 tons. In Syria refined oil storage amounts to about 22,000 tons and crude oil to about 904,000 tons. These total figures are only approximate, as tankage in the white and black oil ranges is easily interchangeable, and there is also an unknown amount of storage at public utility plants, industrial installations, and local agents in Lebanon. The detailed analysis of bulk oil tankage capacity is as follows (long tons):—

Product	Tripoli	Beirut	Sidon	Banias	Aleppo	Damascus	Local agents: Syria	T pumping stations	Railways	Totals
Aviation gasoline ...	20	15,440	—	—	—	650 (Aviation gasoline and Aviation turbine fuel)	—	—	—	17,790 (Aviation gasoline and Aviation turbine fuel)
Aviation turbine fuel ...	—	1,680	—	—	—		—	—	—	
Motor gasoline	10,150	11,910		—	690	910	420	60	—	
Kerosine	2,180	8,880	6,910 (Motor gasoline, Kerosine and Gas oil)	—	690	930	80	—	—	78,450 (Motor gasoline, Kerosine and Gas oil)
Gas oil	1,680	16,360		500	920	2,770	160	12,250	—	
Fuel oil	30,770	4,090	55,370	—	30	—	—	—	2,890	93,150
Total	44,800	58,360	62,280	500	2,330	5,260	660	12,310	2,890	189,390
Crude oil	313,950	—	475,000	793,160	—	—	—	111,400	—	1,693,510

NOTE.—There is in addition 17,800 tons bulk storage at Latakia, 6,500 tons at Beirut, and 1,310 tons at Tripoli not at present in use.

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Consumption

13. In the first half of 1956 the average monthly internal consumption of products was as follows (long tons):—

Nature	*Syria*	*Lebanon*	*Totals*
Aviation gasoline ...	520	3,800	4,320
Motor gasoline ...	7,250	5,830	13,080
Aviation turbine fuel	70	330	400
Kerosine	5,080	3,130	8,210
Gas oil	22,350	9,020	31,370
Fuel oil	13,460	12,650	26,110
Lubricating oil ...	840	410	1,250
Bitumen	620	790	1,410
Total	50,190	35,960	86,150

14. In the white oils range, aviation products are consumed partly by the Air Forces, and partly by civil aircraft. Monthly consumption by the Air Forces in 1956 is running at the following rates (long tons):—

	Lebanon	*Syria*
Aviation gasoline	67	50
Aviation turbine fuel	92	58

Kerosine is used extensively for domestic heating and cooking.

15. In the black oils range, the high consumption of gas oils in both countries, particularly Syria, is due to the extensive use of diesel and gas oils in motor transport and the agricultural industry. It is estimated that the railways in both countries consume about 10 tons monthly of diesel/gas oil, and about 2,300 tons monthly of fuel oil. Power stations and industry account for most of the fuel oil consumption.

Bunkering trade

16. Lebanon has a small bunkering trade, centred principally at Sidon. In the first half of 1956 deliveries of bunker fuels from tankage to ship were as follows (long tons):—

Gas oil	1,200
Fuel oil	73,700
Total	74,900

17. Syria has no bunkering trade.

Recent developments in Syria and Lebanon

18. On 4th November, 1956, the three T pumping stations in Syria on the Iraq Petroleum Company's pipelines were destroyed. The exact extent of the damage is not known, but repair would possibly take from 6 to 9 months. The 12 and 16-inch pipelines have also been cut in Lebanon. It would be possible, however, assuming Syrian co-operation, to pump oil within one week to Banias and Tripoli direct from T1 pumping station in Iraq, to the extent of about 10–11 million tons a year, *i.e.,* about 40 per cent. of capacity.

19. Tripoli refinery is at present, therefore, cut off from its normal source of crude oil. The refinery has continued normal operation on crude oil stocks at Tripoli which are sufficient until early January 1957. In addition the Syrian Government has agreed to ship about 180,000 tons of crude now in Banias to Tripoli. It is estimated, therefore, that the refinery, which has a monthly throughput capacity of nearly 45,000 tons, can continue normal operation until about the end of April on crude stocks at Tripoli and Banias. The Sidon refinery, fed by Tapline from Saudi Arabia, has continued normal operation.

20. Provided that imports of aviation gasoline and lubricants from the Americas continue, Lebanon will probably experience no difficulties over oil

supplies until the Tripoli refinery exhausts available stocks of crude. Syria's main problem will be to secure sufficient imports (about 16 to 17,000 tons a month) of gas oil to supplement her share of the Tripoli and Sidon production. Her normal main sources of supply—France, Italy and Aden—are now no longer assured, and she is pressing the American companies to increase the production at Sidon. This alone will not meet her needs, and she will probably seek further supplies from the Soviet *bloc* and/or the Americas.

Appendix A

TRIPOLI, OIL INSTALLATIONS (LEBANON)

1. Tripoli is the terminal of the 12-in. and 16-in. crude oil pipelines from Iraq. There are important tanker loading facilities, a large bulk storage tank farm, and a small refinery producing for local requirements.

Tripoli: Total Bulk Oil Storage

2. These figures are dated November–December 1956, and include tankage at the terminal farm, refinery and airfield. They do not include refinery intermediate tankage, and the Ezzedine depot.

	Long tons
Aviation gasoline	20
Motor gasoline	10,150
Kerosine	2,180
Gas oil	1,680
Fuel oil	30,770
Total (Refined products)	44,800
Crude oil	313,950

Tripoli: Terminal Tank Farm

3. This is the terminal farm for the 12-in. and 16-in. pipelines from Iraq.

(*a*) Location.

1:200,000 Levant series. Sheet NI–36–XVIII. 16552790.

(*b*) Storage capacity (November 1956).

Nature	*No. of tanks*	*Capacity of tank* (long tons)	*Total capacity* (long tons)
Crude oil	20	10,150	203,000
Crude oil	7	14,400	100,800
Total (Crude oil) ...	27		303,800
Refinery: surplus Benzine	1	10,150	10,150
Refinery: Fuel oil ...	3	10,150	30,450
Refinery: Reserve feed (Crude)	1	10,150	10,150
Relief tanks	2	10,150	20,300
Total	7		71,050

Note.—Tank capacities are useful indicators of storage capacities.

(*c*) Stocks held on 4th November, 1956.

	Tons
Crude oil	120,000
Crude oil unavailable in tank bottoms ...	64,000

(*d*) Loading facilities.

(i) Tanker berths.

There are four berths each with four or five mooring buoys for securing the sterns of tankers, which use their own anchors forward. The berths can accommodate supertankers. The depth at the berths is over 50 ft.

(ii) Connections with Tank Farm.

From the manifold near the signal station on shore, two pipelines run out to each berth.

Berth	*Pipeline*	*Size* (in.)	*Type*	*Loading rate* (tons per hour)
1	North	8	Boiler fuel	125
	South	10	Crude oil	650
2	North	10	Crude oil	675
	South	10	Crude oil	675
3	North	8	Crude oil	500
	South	8	Crude oil	500
4	North	10	Crude oil	750
	South	10	Crude oil	750

(iii) There are no unloading facilities, but if necessary, tankers could use their pumps to unload crude and black oils.

Tripoli: Refinery

4. This is owned by the Iraq Petroleum Company.

(*a*) Location.

1:200,000 Levant series. Sheet NI–36–XVIII. 16452795.

(*b*) Production.

The estimated *monthly* production in 1956 is as follows:—

Nature	*Production* (long tons)	*Percentage by weight*
Motor gasoline	8,240	21
Kerosine	4,540	11
Gas oil	7,960	19
Fuel oil	21,090	49
Total	41,830	100

(*c*) Refinery capacity.

Throughput of the refinery could be increased to about 700,000 tons *per annum*, and the yield of each product would increase in proportion to the percentages in (*b*) above.

(*d*) Storage capacity (November 1956).

(i) South Farm (finished products).

Nature	*Capacity* (long tons)	*Diameter of tank in metres*	*Height*
Refined kerosine ...	410	8·70	6·75
Refined kerosine ...	760	10·40	9·05
Refined kerosine ...	760	10·40	9·05
Gas oil	410	11·98	3·88
Gas oil	410	11·98	3·88
Gas oil	760	10·40	9·05
Total (6 tanks) ...	3,510		

(ii) West Farm (process).

Nature	*Capacity* (long tons)	*Diameter of tank in metres*	*Height*
Unrefined gasoline ...	300	7·28	7·13
Unrefined gasoline ...	300	7·28	7·13
Unrefined gasoline ...	300	7·28	7·13
Unrefined gasoline ...	300	7·28	7·13
Gasoline (Ethyl Mixing)	2,560	15·23	14·63
Gasoline (Ethyl Mixing)	2,560	15·23	14·63
Unrefined kerosine ...	350	8·88	5·65
Unrefined kerosine ...	320	8·91	5·22
Total (8 tanks) ...	6,990		

(iii) Tanks in Refinery.

Nature	Capacity (long tons)	Diameter of tank in metres	Height
Refined kerosine ...	250	8·88	4·00
Gas oil	100	5·05	5·00
Fuel oil	320	8·89	5·21
Fuel for boiler house ...	84	4·65	4·89
Slop tank	100	5·05	5·00
Slop tank	29	2·85	4·55
Total	883		

(*e*) Distribution facilities.

The refinery is road and rail served, with road and rail tanker filling points.

Tripoli (*Wassif Ezzedine*) *Depot*

5. This depot is not in use at present.

(*a*) Location.

On the coast, about $1\frac{1}{2}$ miles east of Tripoli El Mina, and nearly 3 miles west of the refinery.

1:200,000 Levant series. Sheet NI–36–XVIII. 16072790.

(*b*) Storage capacity (May 1955).

All tanks are empty.

1 × 700 water tons.
2 × 250 water tons.
2 × 55 water tons.

(*c*) Distribution facilities.

The depot is road and rail served. The filling plant was removed during the 1939–45 war.

Tripoli (*Kleiat*) *Airfield*

6.—(*a*) Location.

On the coast, $13\frac{1}{2}$ miles NE. of Tripoli.

1:200,000 Levant series. Sheet NI–36–XVIII. 166294.

(*b*) Storage capacity (December 1956).

Nature	No. of tanks (underground)	Total capacity (long tons)
Aviation gasoline ... (100/130 octane) ...	1	13 (4,000 Imperial gallons)
(100/130 octane) ...	1	8 (2,500 Imperial gallons)
Total	2	21 (6,500 Imperial gallons)

(*c*) Refuelling units.

Only two small " Sudan " pumping units.

APPENDIX B

BEIRUT, OIL INSTALLATIONS (LEBANON)

1. Beirut has considerable oil storage facilities, and is also important as an oil unloading port. Refined products from Western Europe, the United States, and the Persian Gulf are unloaded, and distributed to Syria, Lebanon and Jordan.

Total Bulk Storage Capacity

2. The following figures are mainly for May 1955, and include all used oil storage in Beirut. Certain installations are not in use, and have not been included.

	Long tons
Aviation gasoline	15,440
Motor gasoline	11,910
Aviation turbine fuel	1,680
Kerosine	8,880
Gas oil	16,360
Fuel oil	4,090
Total	58,360

Total Stocks Held

3. The Shell Company normally holds stocks at Beirut of 75–80 per cent. capacity. It is probable that the other companies aim to keep average stocks at 50–75 per cent. of capacity.

Physical Layout

4. The main storage depots are on the eastern side of Beirut, scattered along the coast.

(i) *Mourgue D'Algue Depot*

(*a*) Location.

On the coast, north-west of the railway station.

1:200,000 Levant series. Sheet NI–36–XII. 13122184.

(*b*) Storage capacity (May 1955).

Nature	No. of tanks	Total capacity (long tons)
Motor gasoline	1	600
Motor gasoline	1	500
Kerosine	1	800
Total	3	1,900

There are also four empty tanks:—

2 × 50 water tons.
1 × 290 water tons.
1 × 790 water tons.

(*c*) Distribution facilities.

By road only.

(ii) *Shell Co. Depot*

(*a*) Location.

East of the River Beyrouth.

1:200,000 Levant series. Sheet NI–36–XII. 13272184.

(*b*) Storage capacity (December 1956).

Nature	*No. of tanks*	*Capacity of each tank* (long tons)	*Total capacity* (long tons)
Aviation gasoline ...	2	2,385	4,770
Aviation gasoline	1	880	880
Aviation gasoline	1	510	510
Aviation gasoline	1	410	410
Aviation gasoline	1	270	270
Motor gasoline	2	2,160	4,320
Aviation turbine fuel ...	1	1,190	1,190
Aviation turbine fuel ...	1	410	410
Kerosine	1	1,350	1,350
Gas oil	1	4,160	4,160
Gas oil	1	3,050	3,050
Fuel oil	1	4,090	4,090
Total	14		25,410

Also:

Special boiling point spirit ...	1	520	520
Service	4	150	600

(*c*) Stocks normally held.

The tanks are normally about 80 per cent. full.

(*d*) Distribution facilities.

The depot is rail served, with rail tanker filling points. There are also road tanker filling points, and packed product storage facilities.

(*e*) Tanker unloading facilities.

Tanker berths.

One berth 400 yds. offshore, with accommodation for one T–2 tanker. Limiting factors: overall length 560 ft., beam unlimited, draft 32 ft., 18,000 deadweight tons. Four mooring buoys are provided, and depth at berth is 36 ft.

Connections with depot:—

Number	*Length* (ft.)	*Size* (in.)	*Type*	*Unloading rate* (tons per hour)
1	2,860	8	Clean	260
1	2,860	8	Dirty	300

Loading facilities.

There are no loading facilities from shore to ship.

(iii) *Ghalieh Co. Depot*

(*a*) Location.

1,000 yds. south-east of the Shell depot along the coast.

(*b*) Storage capacity (May 1955).

5 empty tanks:—

1 × 1,080 water tons.
1 × 180 water tons.
1 × 100 water tons.
2 × 30 water tons.

(iv) *Chammas Co. Depot*

(*a*) Location.

250 yds. east of Depot (ii) along the coast.

(*b*) Storage capacity (May 1955).

Two tanks loaned to Esso:—

Nature	*Capacity per tank* (long tons)	*Total capacity* (long tons)
Gas oil	1,120	2,240

Also 5 empty tanks:—

1 × 1,110 water tons.
1 × 450 water tons.
1 × 30 water tons.
2 × 20 water tons.

(v) *Esso (formerly Société du Napthe) Depot*

(*a*) Location.

East of Depot (iv).

(*b*) Storage capacity (May 1955).

Nature	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)
Aviation gasoline ...	2	1,700	3,400
Motor gasoline	1	1,000	1,000
Kerosine	1	550	550
Gas oil	1	70	70
Total	5		5,020

(*c*) Distribution facilities.

Depot is rail and road served.

(vi) *National Petroleum Company*

(*a*) Location.

Immediately east of Depot (v).

(*b*) Storage capacity (August 1950).

Nature	*No. of tanks*	*Capacity of each tank* (long tons)	*Total capacity* (long tons)
Motor gasoline	2	560	1,120
Motor gasoline	1	30	30
Kerosine	1	1,650	1,650
Kerosine	1	80	80
Total	5		2,880

(*c*) Distribution facilities.

Road and rail served.

(*d*) Tanker unloading facilities.

Tanker berths.

One berth, offshore mooring, with accommodation for one supertanker. Controlling depth 38 ft. M.L.W., tidal range 0·5 ft.

Connections with depot:—

Number	*Length* (ft.)	*Size* (in.)	*Type*	*Unloading rate* (tons per hour)
1 ...	236	8	Clean	400
Submarine 1 ...	3,609	10	Clean	

There are no loading facilities, shore to ship.

(vii) *Socony Mobil Co. Depot*

(*a*) Location.

Immediately east of Depot (iv).

(*b*) Storage capacity (May 1955).

Nature	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)
Aviation gasoline ...	1	2,660	2,660
Aviation gasoline ...	1	1,200	1,200
Aviation gasoline ...	1	930	930
Motor gasoline	1	3,320	3,320
Kerosine	1	2,840	2,840
Kerosine	1	590	590
Gas oil	1	5,580	5,580
Gas oil	1	1,260	1,260
Total	8		18,380
Also:			
Aviation gasoline ...	2 service	160	320
Motor gasoline	1 service	50	50

(*c*) Distribution facilities.

The depot is road and rail served (standard gauge). There are rail tanker filling points, and warehouses for packed products.

(*d*) Tanker unloading facilities.

Tanker berths.

One berth offshore with accommodation for one T–2 or supertanker. Controlling depth 37 ft. 6 in.

Connections with depot:—

Number	*Length* (ft.)	*Size* (in.)	*Type*	*Unloading rate* (tons per hour)
1 ...	3,600	10	Clean	440–1,200

Loading facilities.

There are no loading facilities, shore to ship.

(viii) *Syria and Lebanon Oil Co. Depot*

(*a*) Location.

Immediately east of Depot (vii).

(*b*) Storage capacity (May 1955).

Nature	*No. of tanks*	*Total capacity* (long tons)
Motor gasoline	1	20
Motor gasoline	1	1,000
Kerosine	1	20
Kerosine	1	1,000
Total	4	2,040

(*c*) Distribution facilities.

Depot is road and rail served.

(ix) *Miskawi Depot* (location not known)

Storage capacity (May 1955).

(All tanks are empty.)

1 × 5 water tons.
2 × 14 water tons.
2 × 1,130 water tons.

There is also storage capacity at:—

(x) *Beirut International Airfield*

(*a*) Location.

On the coast 4½ miles SSW. of the centre of Beirut. 1:200,000 Levant series. Sheet NI–36–XII. 128210.

(*b*) Storage capacity (December 1956).

The Shell, Esso, and Socony Mobil Oil Companies have a pipeline distributing system to various points on the airfield. Tankage linked to this system is as follows:—

Nature	*No. of tanks*	*Capacity per tank* (Imperial gallons)	*Total capacity* (Imperial gallons)
(i) Shell.			
Aviation gasoline (100/130 octane)	4	12,000	48,000
(ii) Esso.			
Aviation gasoline (115/145) ...	4	5,000	20,000
Aviation gasoline (100/130) ...	1	10,000	10,000
(iii) Socony Mobil.			
Aviation gasoline (108/135) ...	2	15,000	30,000
Aviation gasoline (100/130) ...	2	4,000	8,000
Aviation gasoline (115/145) ...	2	4,000	8,000
Total aviation gasoline ...	15		124,000*

* (413 long tons)

In addition, there is the following tankage not linked to the hydrant system (above):—

(iv) Shell.			
Aviation turbine fuel	1	5,000	5,000
Aviation turbine fuel	1	6,500	6,500
(v) Socony Mobil.			
Aviation turbine fuel	2	6,000	12,000
Total (aviation turbine fuel)	4		23,500†

† (84 long tons)

(*c*) Stocks normally held.

Stocks are normally about 50–75 per cent. of capacity.

(*d*) Refuelling units.

No.	*Unit*	*Capacity per unit* (Imperial gallons)
(i) Shell.		
3	Dorset	1,000
1	Derby	2,500
1	Tweed	12,000
2	Old units	700
(ii) Esso.		
2	—	1,600
(iii) Socony Mobil.		
2	—	1,400
1	—	2,200

APPENDIX C

SIDON, OIL INSTALLATIONS (LEBANON)

1. Sidon is the terminal of the 30-in. pipeline from the ARAMCO fields in Saudi Arabia. The installations include a terminal tank farm with extensive storage and tanker loading facilities, and a small refinery. All installations are American owned and operated.

Sidon: Total Bulk Oil Storage

2. The following figures are dated January 1955, and include tankage at the terminal farm and the refinery: —

	Long tons
Motor gasoline, Kerosine, Gas oil	6,910
Marine diesel and fuel oils	55,370
Total (refined products)	62,280
Crude oil	475,000

Sidon: Terminal Tank Farm

3. This is the terminal for the 30-in. pipeline from Saudi Arabia. Crude oil is loaded into tankers, which can also bunker here.

(*a*) Location.

South of Sidon town, between Sidon and the river Zahrani. 1:200,000 Levant series. Sheet NI-36-XII. 11351735.

(*b*) Storage capacity (January 1955).

Nature	*No. of tanks*	*Capacity of tank* (long tons)	*Total capacity* (long tons)
Crude oil	20	23,750	475,000
Bunkering: Diesel oil ...	1	12,000	12,000
Bunkering: Diesel oil ...	1	1,860	1,860
Bunkering: Fuel oil ...	2	12,860	25,720
Bunkering: Fuel oil ...	2	2,000	4,000
Total (Bunkering Fuels)	6		43,580

(*c*) Tanker loading facilities.

Tanker berths.

There are four tanker berths, capable of taking supertankers. Each berth, at which the depth of water is 50 ft., consists of five mooring buoys, three stern buoys, and two beam buoys, tankers using ship's anchor forward.

Connections to berths.

The feed pipeline runs north along the shore from a bank of control valves situated just north of the Boat Jetty to positions opposite the tanker berths.

Number of lines	*Length* (ft.)	*Pipe size* (in.)	*Flexible size* (in.)	*Type*	*Loading rate* (tons per hour)
1 ...	5,280	20	12	Crude	2,860
1 ...	5,280	20	12	Crude	2,800
1 ...	5,280	30	12	Crude	3,710
1 ...	5,280	30	12	Crude	3,570
1 ...	5,280	18	12 and 8	Bunkers	Not known
1 ...	5,280	14	12 and 8	Bunkers	Not known
1 ...	5,280	12	8	Bunkers	Not known
1 ...	5,280	12	8	Bunkers	Not known
1 ...	5,280	14	8 and 6	Bunkers	Not known

Mediterranean Refining Co. (Medreco) Refinery

4. This refinery is owned 50 per cent. by the Socony Mobil Oil Co., and 50 per cent. by Caltex. It commenced operation in early 1955.

(*a*) Location.

The refinery is located at Zahrani, south of the terminal tank farm. The exact location is not known.

(*b*) Estimated monthly production (1956).

	Long tons
Motor gasoline	6,330
Kerosine	3,670
Gas oil	8,170
Fuel oil	16,670
Total (refined products)	34,840

NOTE.

(i) This refinery has never produced aviation turbine fuel.

(ii) Production may be increased at this refinery, if production at Tripoli decreases due to the sabotage of the I.P.C. pipelines.

(*c*) Monthly capacity of the Refinery.

	Long tons
Motor gasoline	9,180
Kerosine	5,330
Gas oil	11,810
Fuel oil	24,110
Total	50,430

NOTE.—Aviation turbine fuel could probably be produced if necessary.

(*d*) Source of crude oil.

Crude oil is drawn from the terminal tank farm of the 30-in. pipeline from Saudi Arabia.

(*e*) Details of Refinery.

There is one crude distillation unit, with a nominal capacity of 1,280 tons per day. The unit has operated at 1,860 tons per day. There are also platforming units capable of reforming all motor gasoline from the crude distillation unit. There is one benzine sweetening unit, and a T.E.L. Blending Plant. Water is supplied from wells near the refinery. Steam is supplied from the refinery's own boilers, and power is generated within the refinery.

(*f*) Storage capacity (January 1955).

Nature	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)
Clean products	3	1,240	3,720
Clean products	1	990	990
Clean products	3	720	2,160
Clean products	1	40	40
Marine Diesel oil ...	3	3,310	9,930
Fuel oil	2	930	1,860
Total	13		18,700

NOTE.—Clean products include motor gasoline, kerosine, and gas oils.

(*g*) Distribution of refined products.

Distribution is by road and rail to depots in both Lebanon and Syria. The refinery also supplies bunkering fuels for the Sidon terminal (see paragraph 3 above).

Appendix D

LATAKIA, OIL INSTALLATIONS (SYRIA)

1. The bulk storage tanks at Latakia were constructed as part of the port development scheme. They are owned by the Government of Syria, and have not been used.

Government of Syria Storage Installations

2.—(*a*) Location.

1:200,000 Levant series. Sheet NI-36-XXIV. 15653995.

(*b*) Storage capacity (December 1956).

	No. of tanks	*Capacity of each tank* (long tons)	*Total capacity* (long tons)
	12	900 approx.	10,800
	4	1,750 approx.	7,000
Total ...	16		approx. 17,800

(*c*) Stocks held (1st November, 1956).

The tanks were empty, and not in use.

(*d*) Possible use of tanks.

At present there are no facilities for the unloading of refined products from the sea. There are also no unloading facilities for road tankers. Latakia is not rail served.

Appendix E

BANIAS, OIL INSTALLATIONS (SYRIA)

1. Banias is the terminal of the 30-in. pipeline from Iraq. The installations are owned and operated by the Iraq Petroleum Company.

Terminal Tank Farm

2.—(*a*) Location.

1:200,000 Levant series. Sheets NI-36-XXIV, NI-37-XIX. 17383648.

(*b*) Storage capacity (November 1956).

Nature	*No. of tanks*	*Useful storage capacity per tank* (long tons)	*Total storage capacity* (long tons)
Crude oil ...	28	28,327	793,160
Gas oil ...	1 service tank	500	500

(*c*) Stocks held on 4th November, 1956.

Crude oil stocks were 174,000 tons plus 113,900 tons of unavailable tank bottoms.

(*d*) Details of tanks.

Each tank is 164 ft. in diameter and 56 ft. high. No details are held on the construction of the tanks. The small gas oil tank is 40 ft. in diameter and 24 ft. high.

(*e*) Loading facilities.

Tanker berths.

Accommodation for six T 2s or super-tankers. Limiting details—overall 800 ft., beam unlimited, draught 45 ft., 45,000 deadweight tons. Depth at berths 60 ft.

Connections with Terminal Farm.

All connections are for crude oil:—

Number	*Length* (ft.)	*Size*	*Loading rate*
1 ...	6825/11945	24/32 inch in series	All six berths can be loaded simultaneously at a rate of 2,000 tons per hour each. If one or more berths are not loading, higher rates up to 3,000 tons per hour are possible.
1 ...	5167/11920	24/32 inch in series	
1 ...	5189/9770	24/32 inch in series	
1 ...	5312/7170	24/32 inch in series	
1 ...	5501/6270	24/32 inch in series	
1 ...	7410/5020	24/32 inch in series	

(*f*) Unloading facilities.

The facilities are normally only used for loading crude oil to the tankers. Unloading of crude and black oils from ship to shore could be achieved by tankers using their own pumps. It would then be possible, at a pressure of 150 lb. per sq. in. to load into the top of the highest tank at a rate in excess of 1,000 tons per hour. The existing pumps on shore could only be used after alteration to the manifolds, and the oil would have to be fed into the back of the pumps at a pressure of at least 50 lb. per sq. in.

Appendix F

ALEPPO, OIL INSTALLATIONS (SYRIA)

Socony Mobil Oil Co. Depot

1.—(*a*) Location.

1:200,000 Levant series. Sheet NJ-37-II. 28054720.

(*b*) Storage capacity (November 1956).

Nature	*No. of tanks*	*Total capacity* (long tons)
Motor gasoline	1	690
Kerosine	1	690
Gas oil	1	920
Fuel oil	1	30
Total	4	2,330

(*c*) Stocks normally held.

Not accurately known. If Socony follow Shell practice in Syria, average stocks held will be about three-quarters of capacity.

(*d*) Source of refined oils.

Refined oils are delivered by road and rail tanker from Beirut and Sidon.

(*e*) Distribution facilities.

Distribution is by road and rail. There is one warehouse for packed products.

Appendix G

DAMASCUS, OIL INSTALLATIONS (SYRIA)

1. These installations together form Syria's main bulk oil storage. All products are brought to Damascus by road or rail tanker via Beirut.

Damascus: Total Bulk Oil Storage

2. The following figures are mainly for December 1956, and include all company depots in Damascus, airfield storage, and tankage at Barze: —

	Long tons
Aviation gasoline } Aviation turbine fuel }	650
Motor gasoline	910
Kerosine	930
Gas oil	2,770
Total	5,260

Total Stocks Held

3. Stocks are not accurately known, but usually are about 75 per cent. of capacity.

Shell Company Depot

4.—(*a*) Location.

On the southern outskirts of Damascus.
1:200,000 Levant series. Sheet NI–37–VII. 20161707.

(*b*) Storage capacity (December 1956).

Nature	*No. of tanks*	*Capacity per tank* (water tons)	*Total capacity* (long tons)
Aviation gasoline ...	2	45	90
Motor gasoline	1	152	110
Kerosine	1	152	115
Gas oil	2	152 and 1,220	1,105
Total	6		1,420

(*c*) Stocks normally held.

Average stocks held are usually 75 per cent. of capacity. In winter months, the following rail tankers are used as additional storage in case the Beirut–Damascus road is blocked: —

	No. of tankers	*Capacity per tanker* (long tons)	*Total capacity* (long tons)
	6	7	42
	2	10	20
Total	8		62

(*d*) Distribution.

Distribution is mainly by road tanker to filling stations and users in Damascus.

Socony Mobil Co. Depot

5.—(*a*) Location.

About 120 yds. SSW. of the railway station.
1:200,000 Levant series. Sheet NI–37–VII. 20181741.

(*b*) Storage capacity (December 1956).

Nature	*No. of tanks*	*Total capacity* (long tons)
Motor gasoline	1	490
Kerosine	1	490
Gas oil	1	240
Gas oil	1	600
Total	4	1,820

(*c*) Stocks normally held.

Not accurately known. It is probable that Socony follow Shell practice, and maintain stocks at about 75 per cent. of capacity.

(*d*) Distribution facilities.

Distribution is mainly by road to local agents in Damascus. There is one warehouse for packed products.

National Petroleum Co. Depot

6.—(*a*) Location.

450 yds. north-west of the Shell depot.
1:200,000 Levant series. Sheet NI–37–VII. 20121709.

(*b*) Storage capacity (December 1956).

Nature	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)
Motor gasoline	2	110; 200	310
Kerosine	2	60: 270	330
Gas oil	3	400; 400; 20	820
Total	7		1,460

(*c*) Stocks normally held.

Not accurately known. It is probable that this company follows Shell practice, and maintains stocks at about 75 per cent. of capacity.

(*d*) Distribution.

Mainly by road to local agents.

Damascus Airfield: Bulk Oil Storage

7.—(*a*) Location.

5 miles WSW. of the centre of Damascus.
1:200,000 Levant series. Sheet NI–37–VII. 197171.

(*b*) Storage capacity.

Nature	*No. of tanks* (underground)	*Capacity of each tank* (long tons)	*Total capacity* (long tons)
(i) Shell owned tankage (December 1956).			
Aviation gasoline ...	2	37	74
Aviation gasoline ...	2	7	14
Aviation gasoline ...	1	15	15
Aviation turbine fuel ..	2	18	36
Total	7		139

(*b*) Storage capacity—(continued)

Nature	No. of tanks (underground)	Capacity of each tank (long tons)	Total capacity (long tons)
(ii) Socony Mobil tankage (December 1956).			
Aviation gasoline ...	1	28	28
Aviation gasoline ...	2	6	12
Aviation gasoline ...	1	12	12
Aviation gasoline ...	1	14	14
Total	5		66
(iii) Syrian Air Force (March 1955).			
Aviation gasoline and aviation turbine fuel		..	206
Total: Aviation gasoline and aviation turbine fuel		...	411 long tons*

* (123,300 Imperial gallons).

(*c*) Stocks normally held.

Stocks are probably normally 50–75 per cent. of capacity.

(*d*) Refuelling units.

(i) Shell owned.

No.	Unit	Capacity (Imperial gallons)
2	Baumis Warford	1,200 each
1	T.B. Tweed	1,200
1	Chevrolet	700
2	Hand-propelled units for lubricants.	
	(ii) Socony Mobil owned.	
2	Chevrolet	1,600 each
1	Ford	1,600

Bulk oil storage at Barze

8.—(*a*) Location.

Barze village is 3 miles NNW. of Damascus centre.

1:200,000 Levant series. Sheet NI–37–VII. 204179.

(*b*) Storage capacity (March 1955).

All storage is in underground tanks:—

Nature	Total capacity (long tons)
Aviation gasoline and aviation turbine fuel	147

APPENDIX H

STORAGE FACILITIES AT LOCAL AGENTS (SYRIA)

1. Local agents of Shell and Socony Mobil scattered throughout Syria, have small underground storage facilities.

Total Storage Capacity

2. In August 1952 the total storage capacity of all known local agent installations was as follows:—

Product	Total capacity Shell (long tons)	Total capacity Socony (long tons)	Totals
Motor gasoline ...	210	210	420
Kerosine	30	50	80
Gas oil	100	60	160
Total	340	320	660

The National Petroleum Company also had eight tanks, each with a capacity of 10 tons, at distribution stations in Damascus. Information is not available on products stored.

Stocks Normally Held

3. Stocks at local agents are normally maintained at about 50–75 per cent. of capacity.

APPENDIX I

PIPELINES AND PUMPING STATIONS

1. Both Syria and Lebanon are important as transit areas and terminal points for four major pipelines which carry crude oil from Iraq and Saudi Arabia to the Mediterranean.

Iraq Petroleum Company Pipelines

2. There are three pipelines operated by the Iraq Petroleum Company (I.P.C.).

(*a*) Diameter.

30 in., 16 in. and 12 in.

(*b*) Alignment.

The head of all three pipelines is K1 Pumping Station at Kirkuk in Iraq, and the lines run through K 2, K 3 and T 1 pumping stations to the Syrian border. The 12 and 16-in. lines then pass through T 2, T 3 and T 4 pumping stations in Syria, and enter Lebanon to terminate at Tripoli. The 30-in. line passes through T 2 and T 4 stations, and terminates at Banias in Syria.

(*c*) Capacities.

	Tons per year
30 in. to Banias (Syria)	18,000,000
16 in. to Tripoli (Lebanon)	5,167,000
12 in. to Tripoli (Lebanon)	2,583,000
Total	26,750,000

(*d*) Use of pipelines for refined oils.

Gas oil is periodically pumped through the 12-in. line from K 3 Topping Plant in Iraq to the T pumping stations.

(*e*) Details of pipelines.

All the pipelines are buried in trenches which are about 4 ft. deep.

(*f*) Pumping Stations.

These stations fulfil a three-fold function:—

(i) To supply power to enable the crude oil to overcome frictional resistance and flow along the pipelines at a certain speed.

(ii) To act as control points for checking the quantities of oil passed through.

(iii) To serve as bases for pipeline repair and maintenance. Each station has suction pumps for emptying the pipelines in case of need.

All the stations are in Syria, and are designated T 2, T 3 and T 4; all were partly destroyed on November 4, 1956, and at present (December 1956) are not in operation. The extent of the damage is not accurately known.

(*g*) T 2 Pumping Station.

The 12-in., 16-in. and 30-in. pipelines pass through this station.

(i) Location.

Iraq–Iran Quarter-Inch series. Sheet Abou Kemal I–37K. F 5484.

(ii) Storage capacity (1st November, 1956).

Product	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)	*Diameter of tank* (*in feet*)	*Height* (*in feet*)
Motor gasoline ...	1	20	20	—	—
Gas oil	1	1,750	1,750	50	48
Gas oil	1	3,500	3,500	70	48
Total (refined oils)	3		5,270		
Crude oil	1	2,900	2,900	78	35
Crude oil	1	3,500	3,500	70	48
Crude oil	2	23,000	46,000	164	56
Total (crude oil) ...	4		52,400		

(*h*) T 3 Pumping Station.

The 12-in. and 16-in. pipelines, but not the 30-in., pass through this station.

(i) Location.

1:200,000 Levant series. Sheet NI–37–XV. 42802875.

(ii) Storage capacity (1st November, 1956).

Product	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)	*Diameter of tank* (*in feet*)	*Height* (*in feet*)
Motor gasoline ...	1	20	20	—	—
Gas oil	1	1,750	1,750	50	48
Crude oil	2	3,000	6,000	78	35

(*i*) T 4 Pumping Station.

All three pipelines pass through this station.

(i) Location.

1:200,000 Levant series. Sheet NI–37–XIV. 33132885.

(ii) Storage capacity (1st November, 1956).

Product	*No. of tanks*	*Capacity per tank* (long tons)	*Total capacity* (long tons)	*Diameter of tank* (*in feet*)	*Height* (*in feet*)
Motor gasoline ...	1	20	20	—	—
Gas oil	1	1,750	1,750	50	48
Gas oil	1	3,500	3,500	70	48
Total (refined oils)	3		5,270		
Crude oil	2	3,500	7,000	70	48
Crude oil	2	23,000	46,000	164	56
Total (crude oil) ...	4		53,000		

(*j*) Stocks held at pumping stations.

The crude oil tanks are all balancing tanks for compensation between incoming and outgoing flow; therefore the average stocks held vary considerably. The gas oil tanks are usually kept as full as possible, and average stocks are probably about 75 per cent. capacity.

Appendix J

RAILWAY OIL STORAGE FACILITIES (SYRIA AND LEBANON)

1. Before the 1939–45 war all locomotives were coal burning, but because of a wartime coal shortage, almost all were converted to oil burning.

Standard-gauge Fuelling Facilities

2. Most of the storage is for fuel oil. The facilities at Rayak are shared with the 105-cm. railway.

Location	System	Underground storage tanks (Imperial gallons)	Overhead service tanks (Imperial gallons)	Pumps
Meidane Ekbes ...	Northern	1×8,800 1×1,540	1×300	2 hand, each 280 gallons per hour.
Aleppo	Northern, D.H.P.	5×8,800 1×17,600 3×2,860	2×1,760	1 electric, 2,200 gallons per hour. 6 hand, 300 gallons per hour each.
Tel Kotchek ...	Northern	3×8,800	1×1,600	2 hand, each 280 gallons per hour.
Homs	D.H.P.	5×8,800 2×17,600	1×800	1 electric, 1,760 gallons per hour. 9 hand, each 660 gallons per hour.
Tripoli	D.H.P.	4×4,400	1×800	1 electric, 1,760 gallons per hour. 6 hand, each 660 gallons per hour.
Beirut	D.H.P.	4×37,500 3×2,000	1×10,000 1×2,000	No details.
Rayak km. 1 ...	D.H.P.	4×8,800 1×17,600 4×4,000	2×1,800	3 electric, each 2,500 gallons per hour. 16 hand, 660 gallons per hour.
Total: Syria		186,120 (790 tons)	6,220 (30 tons)	
Total: Lebanon ...		242,400 (1,030 tons)	16,400 (70 tons)	
Total: Syria and Lebanon		428,520 (1,820 tons)	22,620 (100 tons)	

Narrow-gauge (105 cm.) Fuelling Facilities

3. The storage listed below is for fuel oil.

Location	System	Underground storage tanks (Imperial gallons)	Overhead service tanks (Imperial gallons)	Pumps	
				Number	Gallons per hour each
Beirut Port ...	D.H.P.	1×2,200	—	2 hand	660
Beirut Station ...	D.H.P.	5×8,820	1×800	1 electric	1,760
				6 hand	660
Ain Saoufar ...	D.H.P.	1×2,200	—	2 hand	660
Baidar	D.H.P.	1×2,200	—	2 hand	660
Mraijate... ...	D.H.P.	1×2,200	—	2 hand	660
Zahle Maalaqua	D.H.P.	2×17,600	—	2 hand	660
Rayak	See standard gauge facilities				
Serrhaya ...	D.H.P.	2×8,800	1×800	4 hand	660
		2×17,600			
Damascus ...	D.H.P.	5×8,800	2×1,800	1 steam	2,600
		6×300		11 hand	600
Deraa	C.F.H.	4×8,800	1×900	5 hand	600
Total: Lebanon		88,100 (375 tons)	800 (3 tons)		
Total: Syria		133,800 (570 tons)	5,300 (22 tons)		
Total: Lebanon and Syria		221,900 (945 tons)	6,100 (25 tons)		

Average Stocks Held

4. The stocks usually held are not known, but it is probable that they are at least 50 per cent. of capacity, and probably higher in winter.